

CLAIM AMENDMENTS

Amended claims: 1-9 and added new claims 10-16.

1. (Currently Amended) A process for the generation of electricity and the production of a concentrated carbon dioxide stream using a molten carbonate fuel cell, the fuel cell comprising an electrolyte sandwiched between an anode and a cathode, an anode chamber and a cathode chamber, wherein the process comprises:

[-]feeding a fuel gas is fed to the anode chamber and a cathode inlet gas comprising carbon dioxide and molecular oxygen is fed to the cathode chamber;

[-] the anode and cathode reactions are allowed to take place to produce producing electricity, an anode off-gas and a cathode off-gas via anode and cathode reactions;

[-]feeding at least part of the anode off-gas is at least partly fed to a catalytic afterburner wherein it is oxidized oxidised with an oxidant to obtain an oxidized oxidised anode off-gas;

[-]recycling the remainder of the anode off-gas is recycled to the anode chamber;
wherein

characterised in that:

[-] the oxidant consists of part of the cathode off-gas and/or part of a molecular oxygen containing external oxidant stream, which external oxidant stream comprises at most 20% (v/v) nitrogen;

[-] the oxidized oxidised anode off-gas is brought into heat-exchange contact with the remainder of the cathode off-gas and the remainder of the external oxidant stream to obtain cooled anode off-gas and a heated mixture of cathode off-gas and external oxidant;

[-] the cathode off-gas is cooled before it is being brought in heat-exchange contact with the oxidized oxidised anode off-gas;

[-] the cooled anode off-gas and the heated mixture of cathode off-gas and external oxidant are fed to the cathode chamber as the cathode inlet gas;

[-] as soon as a set point in the carbon dioxide concentration at the cathode chamber outlet is reached, part of the cooled anode off-gas is withdrawn from the process.

2. (Currently Amended) The process of A process according to claim 1, wherein the withdrawn anode off-gas is further cooled to separate water from it and to obtain a concentrated carbon dioxide stream.
3. (Currently Amended) The process of A process according to claim 1 or 2, wherein the fuel gas is a hydrocarbonaceous gas, and wherein the fuel gas is converted into a carbon monoxide and hydrogen containing gas in the anode chamber.
4. (Currently Amended) The process of A process according to claim 3, wherein only part of the anode off-gas is fed to the catalytic afterburner and the remainder is recycled to the anode chamber, preferably 35 to 90 % (v/v) of the anode off-gas is recycled to the anode chamber, more preferably 50 to 80 % (v/v).
5. (Currently Amended) The process of A process according to claim 3 or 4, wherein the fuel gas is selected from the group consisting of natural gas, methane, biogas and/or land-fill gas.
6. (Currently Amended) The process of A process according to claim 1 or 2, wherein the fuel gas is a reformer effluent comprising hydrogen and carbon monoxide.
7. (Currently Amended) The process of claim 1, A process according to any one of the preceding claims, wherein the fuel gas contains at most 25 % (v/v) of nitrogen, preferably at most 15 % (v/v) of nitrogen, more preferably at most 10 % (v/v) of nitrogen, most preferably contains substantially no nitrogen.
8. (Currently Amended) The process of claim 1, A process according to any one of the preceding claims, wherein the set point in carbon dioxide concentration at the cathode chamber outlet is in the range of from 5% to 40% (v/v), preferably of from 10 to 30% (v/v).
9. (Currently Amended) The process of claim 1, A process according to any one of the preceding claims A process according to any one of the preceding claims, wherein the

10. (New) The process of claim 1, wherein 35% to 90% (v/v) of the anode off-gas is recycled to the anode chamber.
11. (New) The process of claim 1, wherein 50% to 80% (v/v) of the anode off-gas is recycled to the anode chamber.
12. (New) The process of claim 1, wherein the fuel gas contains at most 15% (v/v) nitrogen.
13. (New) The process of claim 1, wherein the fuel gas contains at most 10% (v/v) nitrogen.
14. (New) The process of claim 1, wherein the fuel gas contains substantially no nitrogen.
15. (New) The process of claim 1, wherein the set point in carbon dioxide concentration at the cathode chamber outlet is in the range of from 10% to 30% (v/v).
16. (New) The process of claim 1, wherein the external oxidant stream is substantially pure oxygen.